

APPENDIX 1 - QUESTIONNAIRE

AGROPASTORALIST CLIMATE CHANGE ADAPTATION STRATEGIES: A CASE OF NORTHERN GHANA

I am a student at the Czech University of Life Science Prague, Czech Republic, and I am conducting this study to learn more about the “*Pastoralist climate change adaptation strategies in northern Ghana* “. Kindly help me by filling out the questionnaire below. This exercise will only take few minutes. I would appreciate it very much if you would help in filling out this with utmost sincerity so as to obtain accurate results for the research. Thank You!

Identification

Name of respondent.....

Phone number.....

Local government area.....

Date of interview.....

Section A: Characteristics of farmers

1. When did you start rearing livestock?	
2. How many members of your family are you living with?	
3. How many children of your family are you living with? (under age 15)	
4. How did you get the farm/animals?	Inherited <input type="checkbox"/> purchased <input type="checkbox"/>
5. How many older people of your family are you living with?(60yrs and over)	
6. Your gender please?	Male <input type="checkbox"/> Female <input type="checkbox"/>
7. Have you had any form of education?	Yes <input type="checkbox"/> No <input type="checkbox"/>
8. If yes, what kind of education is it?	Formal <input type="checkbox"/> Non-formal <input type="checkbox"/>
9. What is your highest level of education?	Basic <input type="checkbox"/> Secondary <input type="checkbox"/> Tertiary <input type="checkbox"/> Vocational <input type="checkbox"/> Others.....

10. Have you had any training in livestock production?	Yes <input type="checkbox"/> No <input type="checkbox"/>
11. How long did you undergo such training?	
12. If yes, If yes how long did you undergo such training?	
13.	
14. In which month(s) did you experience feed shortage last year?	Nov <input type="checkbox"/> Dec <input type="checkbox"/> Jan <input type="checkbox"/> Feb <input type="checkbox"/> March <input type="checkbox"/> April <input type="checkbox"/>
15. In which month(s) did you experience water scarcity last year	Nov <input type="checkbox"/> Dec <input type="checkbox"/> Jan <input type="checkbox"/> Feb <input type="checkbox"/> March <input type="checkbox"/> Apr <input type="checkbox"/>
16. Do you own a land?	Yes <input type="checkbox"/> No <input type="checkbox"/>
17. Do you possess any establish Pasture?	Yes <input type="checkbox"/> No <input type="checkbox"/>
18. If Yes, what is the size of pasture (in Arces)	
19. What species of animal are you keeping?	Goat <input type="checkbox"/> Sheep <input type="checkbox"/> Cattle <input type="checkbox"/>
20. How many species do you have in your Farm? Each	Goat <input type="checkbox"/> Sheep <input type="checkbox"/> Cattle <input type="checkbox"/>
21. What is or are the main source of feed for your animals during the dry season?	Concentrate feed <input type="checkbox"/> Hay <input type="checkbox"/> Other(s).....
22.	

Section B: Characteristics of farm

23. What is or are the main source of feed for your animals during the dry season?	Yes <input type="checkbox"/> No <input type="checkbox"/>
24. If yes, what type of ownership	Customary <input type="checkbox"/> Statutory <input type="checkbox"/>
25. Do you possess any established pasture?	
26. What is the size of your pasture?Acre(s)
27. What species of animals are you keeping?	Goat <input type="checkbox"/> Sheep <input type="checkbox"/> Cattle <input type="checkbox"/> Poultry <input type="checkbox"/>
28. How many animals do you have on your farm?	
29. What is or are the main source of feed for your animals during the dry season?	Rangeland <input type="checkbox"/> Agroforestry <input type="checkbox"/> Other(s) <input type="checkbox"/>
30. What is or are the main source of feed for your animals during the rainy season?	Rangeland <input type="checkbox"/> Pasture <input type="checkbox"/> Others <input type="checkbox"/>
31. How large area of forages got extinct last year during the drought? Acres

32. What production system do you practice?	Extensive <input type="checkbox"/> Semi intensive <input type="checkbox"/> intensive <input type="checkbox"/>
33. What is the reason for your choice of animal production system? E.g. Extensive, semi-intensive or intensive system?	

Section C: Institutional Characteristics

34. Do you know of the 1D1F program?	Yes <input type="checkbox"/> No <input type="checkbox"/>
35. Have you ever profited from this program?	Yes <input type="checkbox"/> No <input type="checkbox"/>
36. Do you still profit from the 1D1F program?	Yes <input type="checkbox"/> No <input type="checkbox"/>
37. Do you have access to weather information?	Yes <input type="checkbox"/> No <input type="checkbox"/>
38. Who provides the weather information?	Radio <input type="checkbox"/> TV <input type="checkbox"/> Internet <input type="checkbox"/> Other.....
39. How frequent do you receive weather information?	Every day <input type="checkbox"/> Several times a month <input type="checkbox"/> Several times a year <input type="checkbox"/>
40. Do you receive extension services?	Yes <input type="checkbox"/> No <input type="checkbox"/>
41. Who provides the extension services to you?	Ministry of Agriculture <input type="checkbox"/> NGOs <input type="checkbox"/> Other(s).....
42. How often do you receive extension services?time(s) a weektime(s) a monthtime(s) a year
43. Do you have access to credit?	Yes <input type="checkbox"/> No <input type="checkbox"/>
44. Are there any Grant(s)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
45. If yes, from which agency?	NGO <input type="checkbox"/> Government <input type="checkbox"/> (Specify)
46. Are you a member of farmers' cooperative society?	Yes <input type="checkbox"/> No <input type="checkbox"/>

Section D: Behaviour perception of climate change and access to water

Climate perception

40. Do you agree with following (consider about the last 10 years)?					
Event¹	SD	D	UD	A	SA
Temperature keeps increasing					

Delay in coming of rainfall					
Decrease in rainfall duration (days)					
Increase in frequency of drought					
Increase in frequency of flooding					
Increase in evaporation/drying of the soil					
Increase of livestock pest and disease outbreak					

¹ SD= Strongly disagree, D=Disagree, UD=Undecided, A=Agree and SA=Strongly agree

Perceived impact of climate change on livestock

41. Have you experienced the following events on your farm in the last 10 years?					
Event ¹	Very often (several times a year)	Often (few times a year)	Sometimes About once a year	Seldom Once in several years	Never
Insufficient supply of drinking water for animal					
Insufficient feed from pasture					
Increase in livestock disease outbreak					
Emergence of new animal disease					
Pest infestation/attack					
Low response to treatment					
Low milk production					
Low proliferation					

SD= Strongly disagree, D=Disagree, UD=Undecided, A=Agree and SA=Strongly agree

Adaptation Strategies

42. What is the strategy /ies used in your livestock farming in the last three years to adapt on the changing weather (multiple choice is allowed)?	Periodic sales of animals <input type="checkbox"/> , Building of ponds and reservoirs <input type="checkbox"/> , Providing supplementary feeding <input type="checkbox"/> , Switching to crop production <input type="checkbox"/> , Moving animals from one place to another <input type="checkbox"/> , Changing the type of animal (eg. from cattle to goat) <input type="checkbox"/> , Changing breeds of animals of the same species <input type="checkbox"/> , Vaccination of animal <input type="checkbox"/> , Combining crop farming with animal <input type="checkbox"/> , Provision of shade and ventilation <input type="checkbox"/> , Others.....
43. Are these some of the illnesses your animals struggle with in the past years?	
Cowdriosis	Yes <input type="checkbox"/> No <input type="checkbox"/>
Botulism	Yes <input type="checkbox"/> No <input type="checkbox"/>
Tuberculosis	Yes <input type="checkbox"/> No <input type="checkbox"/>
Diarrhoea	Yes <input type="checkbox"/> No <input type="checkbox"/>
Anthrax	Yes <input type="checkbox"/> No <input type="checkbox"/>
PPR	Yes <input type="checkbox"/> No <input type="checkbox"/>
Bluetongue	Yes <input type="checkbox"/> No <input type="checkbox"/>

	Other(s).....

44. Which of these months do you struggle with water scarcity?	November <input type="checkbox"/> December <input type="checkbox"/> January <input type="checkbox"/> February <input type="checkbox"/> March <input type="checkbox"/>																								
<table border="1"> <tr> <td>Which of these months do you struggle with water scarcity?</td> <td>Nov.</td> <td>Dec.</td> <td>Jan.</td> <td>Feb.</td> <td>Mar.</td> </tr> <tr> <td>Very serious</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Normal serious</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Non-serious</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Which of these months do you struggle with water scarcity?	Nov.	Dec.	Jan.	Feb.	Mar.	Very serious						Normal serious						Non-serious						
Which of these months do you struggle with water scarcity?	Nov.	Dec.	Jan.	Feb.	Mar.																				
Very serious																									
Normal serious																									
Non-serious																									
45. Which water source(s) are available to you in times of extreme drought?																									
47. Are there times when water is completely unavailable in your area?																									
48. How do you provide water for your animals in these times?																									
49. What does the veterinary or the extension agent suggest in these times?																									
49. Do you harvest rain water in the rainy season?	Yes <input type="checkbox"/> No <input type="checkbox"/>																								
50. If yes, how do you store it?	Plastic drums <input type="checkbox"/> Plastic tanks <input type="checkbox"/> Cement tanks <input type="checkbox"/> Metal drum barrel <input type="checkbox"/> Other(s)																								
50. Which period do you often sell your animals?	Month 1,2,3,4,5,6,7,8,9,10,11,12																								
51. What are the reason for the sale of the animals?	Water shortage, feed shortage, income purpose, disease outbreak																								
51. What does the veterinary or the extension agent suggest in these times?																									
52. Please how old are you?																									

APPENDIX 2- PICTURES









